REMARKS

Claims 1-17 are pending in the application. Applicant would like to thank the Examiner for indicating that claims 2-17 are allowed.

Claim 1 is rejected as unpatentable over TAJIMA et al. 6,249,265.

Reconsideration and withdrawal of the rejection are respectfully requested because the reference does not teach or suggest that a brightness value of a subsequent sub-frame of a frame is attenuated at a designated ratio according to a brightness of an inputted picture as recited in claim 1 of the present invention.

By way of example, page 12, lines 12-25 of the present application disclose in conjunction with Figure 9 how the brightness of one pixel is changed as time passes. Specifically, as shown in Figure 9, each frame of the concerned pixel has a brightness such that the brightness of a subsequent sub-frame is consistently one-fourth of the antecedent sub-frame. The greater the brightness of an image signal inputted to one frame is, the larger the difference between the absolute value of brightness and the brightness of the subsequent sub-frame is. Accordingly, the device of the present invention prevents a picture from being blurred or disordered and unclear.

The Official Action states that TAJIMA et al. do not disclose that the brightness of the subsequent sub-frame is

attenuated at a designated ratio. However, the Official Action further states that it would have been obvious to one of ordinary skill in the art to modify the display device of TAJIMA et al. because "discovering an optimum value of a result-effective variable involves only routine skill in the art". The Official Action has cited *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) as providing support for this conclusion.

However, as set forth in *In re Boesch* and as noted in MPEP §2144.05 II. B., "a particular parameter must first be recognized at a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. *In re Antonie,* 559 F.2d 618, 195 USPQ 6 (CCPA 1977)." Accordingly, both *In re Boesch* and *In re Antonie* hold that a particular parameter must first be recognized as a result- effective parameter.

The method of TAJIMA et al. is based on an arbitrary selection sequence that selects a number of sub-frames to adjust a gray-scale level. As seen in Figure 16 of TAJIMA et al., for example, each of the sub-frames has a different gray scale level. By selecting specific ones of the sub-frames, a specific gray scale level can be obtained. For example, to obtain a gray scale level of 20, two sub-frames having a gray scale level of 8 and one sub-frame having a gray scale level of 4 are chosen. TAJIMA et al. do not recognize a need to attenuate the brightness of a

subsequent sub-frame at a designated ratio. Accordingly, attenuating the brightness of a subsequent sub-frame at a designated ratio is not a result-effective variable recognized by TAJIMA et al. Therefore, one of ordinary skill in the art would not be motivated to modify the display device of TAJIMA et al. to attenuate the brightness of a subsequent sub-frame at a designated ratio as proposed in the Official Action.

By way of further explanation, the method of TAJIMA et al. teaches displaying a gray-scale level on a display panel which has only two states, illuminated and not illuminated. The gray-scale level is realized by dividing a frame into sub-frames and deciding which panel is illuminated in reference to input data. In TAJIMA et al., input data is used only to control the panel.

The present invention relates to an LCD, which controls the transmission of light and provides a gray-scale level. Based on the inputted binary number data, voltage is decided and applied to liquid crystal through the signal line driver.

For example, whereas a conventional apparatus applies V voltage in one frame period, the present invention applies V voltage in a half frame period and V/4 voltage in a left half frame period. Namely, the present invention prepares two sub-frames, and one frame generates normal V voltage and the other frame consecutively generates V/4 voltage.

In view of the process of input data, TAJIMA et al. do not perform any process for input data. On the other hand, the

present invention reduces input data and generates output. Inputted data is changed to reduce data through the sub-frame.

By this way, the present invention prevents unclearness and blur that has occurred in a conventional apparatus, which controls a gray-scale level by applying voltage to liquid crystal and adjusting transmission luminance energy.

This method cannot be used with the prior art teachings of TAJIMA et al. Therefore, one of ordinary skill in the art would not find the present invention obvious over TAJIMA et al.

In view of the present amendment and the foregoing remarks, it is believed that the present application has been placed in condition for allowance. Reconsideration and allowance are respectfully requested.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

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